United States Department of Agriculture

Animal and Plant Health Inspection Service

Veterinary Services

Vaccination Practices for Respiratory Pathogens in U.S. Feedlots

National Animal Health Monitoring System

Vaccination is one of several health management practices available to feedlot operators to decrease risk of disease impacting animal performance in the feedlot. Vaccination can be viewed as part of an overall health management program that includes, among other factors: nutrition, handling, facilities, and pre-arrival management.

In the fall of 1994, the USDA's National Animal Health Monitoring System (NAHMS) contacted producers with feedlots of less than 1,000 head capacity by telephone and visited producers with larger feedlots from the 13 primary cattle feeding states.[1] The cattle inventory in the 13 states was approximately 85 percent of the national inventory as of January 1, 1994, and the 13 states fed in excess of 85 percent of the total cattle fed for harvest in the United States. Large-capacity operations comprised 4 percent of feedlots, but accounted for 83.3 percent of total feedlot inventory for the 13 states as of January 1, 1994. During the Cattle on Feed Evaluation (COFE), 913 small-capacity and 453 large-capacity feedlot producers responded to interview questions about operation management and health of their animals. Results were weighted to represent all small and large feedlots from the 13 states.

Producers were asked about vaccination practices for cattle placed on feed in their operation over a period from July 1, 1993, through June 30, 1994.

Vaccination practices for respiratory pathogens while in the feedlot varied by feedlot size and region (Table 1). Less than one-half of smaller feedlots (less than 1,000 head, one-time capacity) vaccinated for each respiratory pathogen. Nearly all (95-100 percent) of larger feedlots vaccinated cattle for infectious bovine rhinotracheitis (IBR). Most large feedlots (75 to 89 percent) also vaccinated for other viral causes of respiratory disease in cattle. Vaccination for bacterial causes of respiratory disease (Pasteurella spp. and Hemophilus somnus) were used much less frequently than viral antigens in all sizes of feedlots.

Table 1 shows **vaccination for respiratory pathogens was used by less than 50 percent of**

Table 1

Percent of Operations Vaccinating Cattle Placed on Feed for Various Antigens by Herd Size and Region

	Feedlot Capacity (Head)				Feedlot Location			
	Less Than 1,000	1,000 or More Annual Number of Placements						
Antigen		Less Than-10,000	10,000-39,999	40,000+	West	Central	Midwest	South Central
Bovine viral diarrhea virus (BVD)	43.7	88.7	86.0	82.5	46.3	31.4	49.3	74.0
Infectious bovine rhinotracheitis (IBR)	46.2	94.8	96.4	100.0	48.8	43.6	48.4	80.6
Parainfluenza Type 3 (PI3)	36.3	87.2	84.3	79.8	32.2	30.1	39.8	75.1
Bovine Respiratory Syncytial Virus (BRSV)	33.5	85.8	81.5	75.3	43.3	24.9	37.8	70.5
Hemophilus somnus	28.6	60.9	57.0	48.0	33.8	21.6	31.1	64.2
Pasteurella spp.	28.4	45.8	55.7	58.0	29.7	19.6	30.7	66.6

*Regions were defined as: WEST - Arizona, California, Idaho, and Washington. CENTRAL - Kansas, Nebraska, and South Dakota. MIDWEST - Iowa, Illinois, and Minnesota. SOUTH CENTRAL - Colorado, Oklahoma, and Texas.

1 Arizona, California, Colorado, Idaho, Illinois, Iowa, Kansas, Minnesota, Nebraska, Oklahoma, South Dakota, Texas, and Washington.

Table 2

Percent of Cattle on Feed Vaccinated for Various Antigens by Herd Size and Region*

Antigen	Less Than 1,000	Feedlot Capacity (Head) 1,000 or More Annual Number of Placements			Feedlot Location			
		Less Than-10,000	10,000-39,999	40,000+	West	Central	Midwest	South Central
Bovine viral diarrhea virus (BVD)	61.5	86.5	75.5	78.8	76.4	92.4	71.4	62.6
Infectious bovine rhinotracheitis (IBR)	65.2	95.4	95.4	99.7	99.1	94.3	75.3	97.7
Parainfluenza Type 3 (PI3)	51.5	83.9	67.7	74.5	67.2	78.4	66.4	66.3
Bovine Respiratory Syncytial Virus (BRSV)	46.2	83.7	62.6	55.7	57.4	71.8	61.4	47.1
Hemophilus somnus	39.3	46.6	39.5	22.0	41.5	30.5	47.9	25.1
Pasteurella spp.	36.4	29.5	26.8	32.2	55.7	17.6	38.2	37.4

*Regions were defined as: WEST - Arizona, California, Idaho, and Washington. CENTRAL - Kansas, Nebraska, and South Dakota. MIDWEST - Iowa, Illinois, and Minnesota. SOUTH CENTRAL - Colorado, Oklahoma, and Texas.

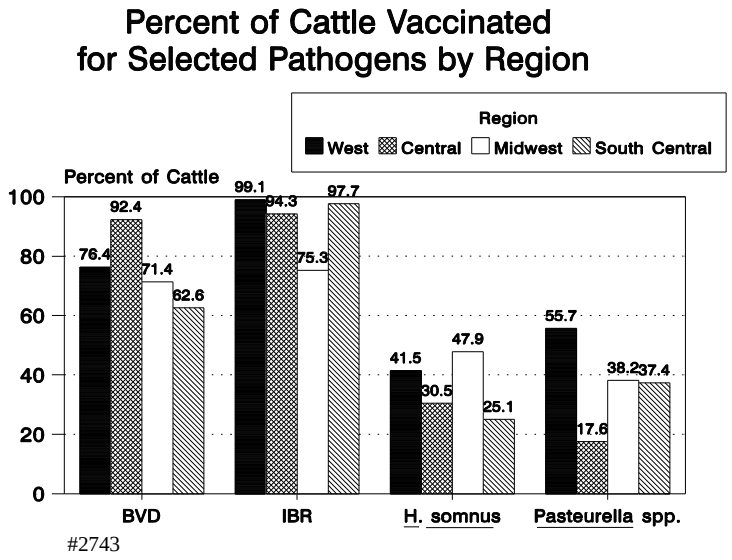
feedlots in all regions with the exception of the south central United States. This result was likely due to the predominance of larger feedlots in the south central region compared to other regions.

The percentage of cattle placed on feed that were vaccinated for viral causes of respiratory disease by feedlot size showed similar trends as with the percent of feedlots vaccinating (Table 2 and Figure 1). On a regional basis, the percentage of cattle vaccinated for respiratory pathogens was, in general, higher than the percentage of operations vaccinating because larger feedlots placed more cattle on feed and were more likely to vaccinate. In the midwest, a higher proportion of the cattle placed were placed in smaller feedlots, and thus, the smaller percentage of animals vaccinated for respiratory viruses in that region compared to the others.

In summary, vaccination for viral pathogens of the respiratory system was common, especially among larger feedlots. **However, for most regions and feedlot sizes, less than one-half of cattle placed were vaccinated for bacterial respiratory pathogens.**

NAHMS collaborators included the National Agricultural Statistics Service (USDA), State and Federal Veterinary Medical Officers, and the National Veterinary Services Laboratories (USDA:APHIS:VS).

Figure 1



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Other COFE information is available on the following topics: Branding, Mexican-origin cattle, environmental management, injection practices, and information sources. Study results on beef cow/calf, dairy cattle, and swine are also available. For more information contact:

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